UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,052	11/26/2003	David M. Durham	42P17248	7821

59796 7590 03/05/2008

INTEL CORPORATION
c/o INTELLEVATE, LLC
P.O. BOX 52050
MINNEAPOLIS, MN 55402

EXAMINER	
RUTTEN, JAMES D	

ART UNIT	PAPER NUMBER
2192	

MAIL DATE	DELIVERY MODE
03/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,052	DURHAM ET AL.	
	Examiner	Art Unit	
	JAMES RUTTEN	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-37 have been examined.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

Claim 10 refers to "virtual memory boundaries." No mention of this was found in the originally filed specification.

Claim 30 refers to "pre-boot." The term was not found in the originally filed specification.

Care should be taken not to introduce new matter in the course of correction.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-14 and 30-37 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 is directed to a "system for a generic parser." The system is claimed as comprising various components including a parser, a data buffer, and layered component drivers. Each of these components appears to be software components and is interpreted as being functional descriptive material. Descriptive material can be characterized as either "functional

descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Alternatively, a system comprised of hardware components that would permit the data structure's functionality to be realized would also be statutory. Claims 2-14 are rejected for the same reasons as claim 1.

Claim 30 is directed to an "article of manufacture comprising a machine accessible medium." Paragraph [0056] on page 20 of the originally filed specification defines a machine readable medium as including a carrier wave. Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in Sec. 101. First, a claimed signal is clearly not a "process" under § 101

because it is not a series of steps. A claimed signal has no physical structure, does not itself perform any useful, concrete and tangible result and, thus, does not fit within the definition of a machine. A claimed signal is not matter, but a form of energy, and therefore is not a composition of matter. A product is a tangible physical article or object, some form of matter, which a signal is not. See, e.g., *In re Nuitjen*, Docket no. 2006-1371 (Fed. Cir. Sept. 20, 2007)(slip. op. at 18)("A transitory, propagating signal like Nuitjen's is not a 'process, machine, manufacture, or composition of matter.' ... Thus, such a signal cannot be patentable subject matter."). In contrast, a tangibly claimed computer-readable medium (e.g. magnetic or optical disk) encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. See MPEP 2106(IV)(B). Claims 31-37 are rejected for the same reasons as claim 30.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites: "wherein the buffer map corresponding to data buffer are communicated separately." The sentence structure makes the claim indefinite. It will be interpreted as follows: *wherein the buffer map and the corresponding data buffer are communicated separately.*

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 11-13, 15, 16, 18-22, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,222,349 to Krinke, II et al. (hereinafter "Krinke") in view of U.S. Patent No. 6,535,929 to Provino et al. (hereinafter "Provino").

In regard to claim 1, Krinke discloses:

A system (see Fig. 2) *for a generic parser* (See Fig. 3), *comprising:*

a parser communicatively coupled with layered components, the layered components requiring data passed between logical layers of a computing system for communication with platform hardware and platform firmware; Krinke discloses utilization of a device driver abstraction which enables communication between an application and device hardware/firmware. This is accomplished by recognition of device specific "keys." Recognition of these keys requires use of a parser, since without a parser the key would be unrecognizable. See column 2 lines 19-26, e.g. "keys"; also column 5 lines 59-62, e.g. "device driver abstraction layer"; also column 6 lines 4-17, e.g. "firmware"

... and layered component drivers comprehending the data <> after conversion by the parser. See column 5 lines 59-62, e.g. "device driver abstraction layer."

Krinke does not expressly disclose: *a data buffer having data communicated between the layered components, the data buffer having a data structure comprehensible to the parser.* However, Provino discloses using a data buffer used in translating data between layered components. See column 2 lines 45-47, e.g. "message buffer." While Krinke is relied upon to disclose a parser, Provino also uses a parser to recognize the various messages, otherwise the messages could not be communicated. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's layered components with Provino's buffer in order to store data such that each layer can access the data as suggested by Provino (see column 6 lines 1-11).

In regard to claim 11, the above rejection of claim 1 is incorporated. Krinke further discloses: *wherein data type translation is performed to comprehend the communicated data buffer between layered components*. See Fig. 3, also column 7 lines 38-44.

In regard to claim 12, the above rejection of claim 1 is incorporated. Krinke further discloses: *wherein conversion of data from one format into another is performed to comprehend the communicated data buffer between layered components.* See Fig. 3, also column 7 lines 38-44.

In regard to claim 13, the above rejection of claim 1 is incorporated. Krinke further discloses: *wherein transformation of data units is performed to comprehend the communicated data buffer between layered components*. See Fig. 3, also column 7 lines 38-44.

In regard to claim 15, Krinke discloses:

A method for using a communicated data ... among logical layered components in a computing system (e.g. see Figs. 5 and 6), *comprising:*

reading a unit of data from the communicated data..., by the parser, according to a buffer map; See column 2 lines 22-26, e.g. "communication with a device..."; also see column 2 lines 40-47, e.g. "attribute file."

determining a type associated with the unit of data; See column 2 lines 48-50, e.g. "type of device."

if the unit of data type corresponds to a derived data type, then identifying data structures comprising the derived data type; See Fig. 6, elements 65 and 69, where it is determined whether a similar device is already supported, and if so, then using those attributes. Also see column 9 lines 45-49.

and communicating with at least one layered component, wherein the layered component requires access to a structure in the communicated data. See Fig. 2, element 124 which shows an abstraction layer.

Krinke does not expressly disclose: *data buffer*. However, Provino discloses using a data buffer used in translating data between layered components. See column 2

lines 45-47, e.g. "message buffer." While Krinke is relied upon to disclose a parser, Provino also uses a parser to recognize the various messages, otherwise the messages could not be communicated. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's layered components with Provino's buffer in order to store data such that each layer can access the data as suggested by Provino (see column 6 lines 1-11).

In regard to claim 16, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the following rejection of claim 3.

In regard to claim 18, the above rejection of claim 15 is incorporated. Krinke and Provino further teach: *wherein if the unit of data type is a data buffer type, then extracting data from the communicated data buffer based on a data type map associated with the communicated data buffer*. Krinke discloses communication based upon the type determination. See Fig. 3. Provino further discloses communication based upon a determination of an addressing mode. See Provino column 2 lines 47-50. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Provino's buffer with Krinke's attributes file in order to pass information between otherwise incompatible layers as suggested by Provino (see column 2 lines 56-59).

In regard to claim 19, the above rejection of claim 18 is incorporated. Krinke further discloses: *wherein the extracted data corresponds to a data structure required by*

the layered component. See column 2 lines 19-26, e.g. "device dependent on which device attributes…"

In regard to claim 20, the above rejection of claim 15 is incorporated. Krinke does not expressly disclose: *wherein the layered component is a virtual interface layer.* However, Provino further discloses: *wherein the layered component is a virtual interface layer.* See column 10 lines 35-42, e.g. "virtual machine." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Provino's virtual machine with Krinke's components in order to prevent execution preemption as suggested by Provino.

In regard to claim 21, the above rejection of claim 20 is incorporated. Krinke further discloses: *wherein data type maps are defined for a plurality of hardware components,* See column 5 lines 63-67. *wherein the parser enables the virtual interface layer to communicate with an existing hardware component.* See Fig. 2, element 200. All further limitations have been addressed in the above rejection of claim 20.

In regard to claim 22, the above rejection of claim 21 is incorporated. Krinke further discloses: *wherein the virtual interface layer publishes a hardware interface that does not correspond to a defined data type map, wherein a map is defined for translating the published hardware interface to data type comprehended by the parser.* See column 6 lines 7-17.

In regard to claims 26-28, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejections of claims 11-13, respectively.

9. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke in view of Provino and further in view of U.S. Patent 6,209,023 to Dimitroff et al. (hereinafter "Dimitroff").

In regard to claim 2, the above rejection of claim 1 is incorporated. Krinke further discloses: *wherein the communicated data <buffer> is defined by a buffer map, the buffer map comprising a type field* See Krinke Fig. 4, and column 2 lines 40-42 and 48-50 e.g. "attribute file," and "type of device." *and at least one field defining data types corresponding to data in the communicated data <buffer>* See Fig. 4, element 136. Note that the communicated data buffer is addressed in the above rejection of claim 1. Krinke and Provino do not expressly disclose: *a length field*. However, Dimitroff discloses a data buffer which utilizes a length field. See column 14 lines 11-17, e.g. "length field." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's buffer map with Dimitroff's length field in order to provide enough storage space required for the data as suggested by Dimitroff.

In regard to claim 3, the above rejection of claim 2 is incorporated. Krinke discloses a buffer map which details how to handle data. See Fig. 3. Provino discloses a data buffer for storing data. It would have been obvious to one of ordinary skill in the art at the time the invention was made to communicate Krinke's buffer map separately from Provino's buffer since a data buffer would be provided by a device in contrast to a map which would be loaded by the device abstraction layer (see Krinke column 5 lines 28-32).

In regard to claim 4, the above rejection of claim 2 is incorporated. Krinke further discloses: *wherein each field defining data types is one of a derived data type and base data type*. See column 6 lines 2-17.

In regard to claim 5, the above rejection of claim 4 is incorporated. Krinke further discloses: *wherein a derived data type comprises at least one of a derived data type and a base data type*. See column 6 lines 2-17. Note that a derived data type is inherently comprised of a derived data type.

In regard to claim 6, the above rejection of claim 4 is incorporated. Krinke further discloses: *a common set of base data types defined in terms of size, format and semantic meaning*. See column 4 lines 63-67. Also see Figs. 3 and 4 where the size and format of the data type helps define the data type. Further, the semantic content of at least elements 134C further helps define the data type.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke in view of Provino in view Dimitroff as applied to claim 2 above, and further in view of U.S. Patent 5,832,520 to Miller (hereinafter "Miller").

In regard to claim 7, the above rejection of claim 2 is incorporated. Krinke further discloses derived and base type tables (see Fig. 4 and column 2 line 41, e.g. "attribute file"), format, and semantic meaning as noted in the above rejections of claims 4-6. Krinke does not expressly disclose: *wherein the parser uses a hash table to search a derived type table and base type table to fully comprehend the communicated data buffer in terms of contained data instances, their format and semantic meaning.* However, Miller teaches that hash tables are a well-known type of data structure used for searching large files. See Fig. 4B and column 7 lines 7-28, e.g. "hash table." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's attribute file with Miller's hash table in order to speed the searching of a large file as suggested by Miller (see column 7 lines 9-11).

11. Claims 8, 14, 23, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke in view of Provino as applied to claim 1 above, and further in view of U.S. Patent 5,398,328 to Weber et al. (hereinafter "Weber").

In regard to claim 8, the above rejection of claim 1 is incorporated. Krinke does not expressly disclose: *wherein an in-line data byte order of the data buffer is*

transformed to and from big endian and little endian byte order. However, Weber discloses conversion of data to accommodate big endian or little endian architectures. See Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's data with Weber's conversion in order to provide compatibility between different architectures as suggested by Weber (see column 1 lines 53-57).

In regard to claim 14, the above rejection of claim 1 is incorporated. Krinke does not expressly disclose: *wherein data is scaled via mathematical transformation to comprehend the communicated data buffer between layered components*. However, Weber teaches that XOR operations allow comprehension between systems. See Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Weber's conversion in order to provide compatibility between different architectures as suggested by Weber (see column 1 lines 53-57).

In regard to claims 23 and 29, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejections of claims 8 and 14, respectively.

12. Claims 9 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke in view of Provino as applied to claim 1 above, and further in view of U.S. Patent 4,408,273 to Plow (hereinafter "Plow").

In regard to claim 9, the above rejection of claim 1 is incorporated. Krinke does not expressly disclose: *wherein pointers are converted in-line based on a new buffer base address*. However, Plow discloses converting pointers to a new base address. See column 5 lines 40-45. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's attribute information with Plow's pointer in order to access the proper attributes as suggested by Plow (see column 5 lines 44-46).

In regard to claim 24, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claim 9.

13. Claims 10 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke in view of Provino as applied to claim 1 above, and further in view of "Operating System Concepts" by Silberschatz et al. (hereinafter "Silberschatz").

In regard to claim 10, the above rejection of claim 1 is incorporated. Krinke and Provino do not expressly disclose: *wherein pointers are converted in-line to new address space after crossing virtual memory boundaries*. However, Silberschatz discloses virtual memory addressing schemes wherein physical address pointers are converted when crossing virtual memory boundaries. See section 8.2. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Silberschatz' virtual

memory in Krinke's system in order to utilize proper memory management as suggested by Silberschatz (see the end of section 8.2).

In regard to claim 25, the above rejection of claim 15 is incorporated. All further limitations have been addressed in the above rejection of claim 10.

14. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke in view of Provino as applied to claim 15 above, and further in view of "An Introduction to Formal Languages and Automata" by Linz (hereinafter "Linz").

In regard to claim 17, the above rejection of claim 15 is incorporated. Krinke further discloses: *wherein identifying data structures further comprises:*

extracting a data type map identifier from the unit of data; See column 2 lines 29-32, e.g. "key."

searching for the data type map identifier in a table of derived types; See column 2 lines 40-47, e.g. "attribute file."

Krinke does not expressly disclose: *and if the data type map identifier is not found in the table of derived types, then searching for the data type map identifier in a table of base types, wherein extracting and searching continue until all data map identifiers in the data unit have been extracted to their base types.* However, Linz discloses using a grammar to find terminal symbols, or base types, in a programming language. See section 5.3. Section 5.2 further discusses the general process of parsing whereby a string

is first applied to production rules. Matching production rules are then further examined until only terminals remain. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's attribute file with Linz' parser in order to provide an efficient and reliable translation as suggested by Linz (see page 151, first paragraph of section 5.3).

15. Claims 30, 31, and 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke in view of Provino as applied to claim 1 above, and further in view of U.S. Patent No. 5,444,850 to Chang (hereinafter "Chang").

In regard to claim 30, Krinke discloses:

An article of manufacture comprising a machine accessible medium containing code having instructions See column 3 lines 59-61, e.g. "execute program instructions stored in memory."

Krinke does not expressly disclose: *that, when executed during pre-boot...* However, Chang discloses loading an operating system kernel during pre-boot. See column 6 line 49 - column 7 line 36, in particular, see column 7 line 35, e.g. "pre-boot." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Krinke's instructions with Chang's pre-boot in order to enhance system efficiency as suggested by Chang (see column 2 lines 30-55). All further limitations have been addressed in the above rejection of claims 1 and 15.

In regard to claims 31 and 33-37, the above rejection of claim 30 is incorporated. All further limitations have been addressed in the above rejections of claims 16 and 18-22, respectively.

16. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krinke, Provino, and Chang as applied to claim 30 above, and further in view of Linz.

In regard to claim 32, the above rejection of claim 30 is incorporated. The cited art of claim 30 does not expressly disclose the features of claim 32. However, all further limitations have been addressed in the above rejection of claim 17, and would be obvious for the same reasons.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Application Publication US 2004/0024897 A1 by Ladd et al. discloses transformation of data from a first format to a second format using a mapping tool.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES RUTTEN whose telephone number is (571)272-3703. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. Derek Rutten/
Patent Examiner, Art Unit 2192